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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,358	04/06/2005	Takenobu Sunagawa	Q86665	7769

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EXAMINER	
BERNSHTEYN, MICHAEL	

ART UNIT	PAPER NUMBER
1796	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/530,358	SUNAGAWA ET AL.	
	Examiner	Art Unit	
	MICHAEL M. BERNSHTEYN	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 2-7 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 2-7 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action follows a response filed on June 4, 2008. Claim 1 has been amended; no claims have been cancelled or added.

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 2, 2008 has been entered.

3. In view of the amendment9s0 and remarks the rejections of claims 2-7 under 35 U.S.C. 103(a) as being unpatentable as obvious over Nakada (JP 2001-098145), Saito (JP 62-187756) and Deyrup et al. (U.S. Patent 4,912,167) have been withdrawn.

4. Applicant's arguments with respect to claims 2-7 have been considered but are moot in view of the new ground(s) of rejection.

5. Claims 2-7 are pending.

Claim Rejections - 35 USC § 103

6. The text of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action.

7. Claims 2-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakada et al. (JP 2001-098145) in view of Laughner (U. S. Patent 5,369,154).

With regard to the limitations of claims 2 and 5, Nakado discloses a thermoplastic polyester resin composition, which is obtained by compounding 100 pts. wt. of thermoplastic polyester resin (A) with 0.1-10 pts. wt. of a carboxylic acid reactive group-containing polymer (B-1) and /or a compound (B-2) containing plural oxazoline groups in the molecule and 0.01-5 pts. wt. of carboxylic acid anhydride (abstract).

Nakado discloses that when a polymer (B-1) has an epoxy group, it can be obtained from glycidyl methacrylate or metaglycidyl acrylate and copolymerizable monomer, such as methyl (meth) acrylate, butyl (meth) acrylate, 2-ethylhexyl (meth)acrylate, etc. The number average molecular weight of the polymer (B-1) has the desirable range of 1,000-20,000 (pages 3-4, [0018]-][0020]).

Nakado does not disclose that said viscosity modifier having weight average molecular weight of 50,000 to 400,000, and the weight ratio of unit (a) and (b) in the viscosity modifier.

Laughner discloses that the molecular weight of the polymeric epoxide-containing modifier is preferably between about 30,000 and about 200,000, which is mainly within the claimed range (col. 9, lines 41-44). Copolymers of about 1-25% by weight of glycidyl methacrylate and about 40% of vinyl acetate or butyl acrylate are particularly suitable for use as the polymeric epoxide-containing modifier (col. 9, lines 14-18).

Both references are analogous art because they are from the same field of endeavor concerning new viscosity modifiers for thermoplastic resin compositions.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust weight average molecular weight and the weight ratio of unit (a) and (b) in the polymeric epoxide-containing viscosity modifier as taught by Laugnher in Nakada's thermoplastic polyester resin composition because when an olefinic epoxide-containing modifier having such properties is present in the composition, substantially more favorable values for gloss and weldline and impact strength are achieved without loss of processibility (US'154, col. 22, lines 24-28), and thus to arrive at the subject matter of instant claim 2.

With regard to the limitations of claims 3 and 4, Nakado discloses a molded article obtained by extrusion molding the thermoplastic polyester resin composition having not only mechanical characteristics and durability but also sufficiently excellent moldability (abstract, pages 6-7, [0029]-[0037]).

With regard to the limitations of claim 6, Nakado discloses that the polyester comprises acid components, such as dicarboxylic acid, terephthalic acid, cyclohexane dicarboxylic acid, etc., and glycol components, such as ethylene glycol, trimethylene glycol, etc. (page 2, [0011]).

With regard to the limitations of claim 7, Nakado discloses that polyethylene terephthalate and polybutylene terephthalate are desirable as the thermoplastic polyester (page 3, [0012]).

8. Claims 2-7 are rejected under 35 U.S.C. §103(a) as being unpatentable over Saito (JP 62-187756) in view of Laughner (U. S. Patent 5,369,154).

With regard to the limitations of claims 2-7, Saito discloses a thermoplastic polyester resin composition 100 pts. wt. in total, comprising 50-99.9 wt% of polyethtylene terephthalate (A) composed of at least 80 mol% of ethylene terephthalate units, and 0.01-50 wt% of vinyl copolymer (B) having at least 5 mol% of glycidyl methacrylate units (e.g., a **glycidyl methacrylate/methyl methacrylate copolymer** (abstract).

Saito discloses that the thermoplastic polyester resin composition consisting of polyethylene terephthalate and the vinyl copolymer with a specific amount of glycidyl methacrylate was used to provide the titled molding material, which has plasticity and excellent melt stability during molding and gives moldings having little burr (abstract).

Saito does not disclose the weight ratio of unit (a) and (b) in the viscosity modifier and its weight average molecular weight.

Laughner discloses that the molecular weight of the polymeric epoxide-containing modifier is preferably between about 30,000 and about 200,000, which is mainly within the claimed range (col. 9, lines 41-44). Copolymers of about 1-25% by weight of glycidyl methacrylate and about 40% of vinyl acetate or butyl acrylate are particularly suitable for use as the polymeric epoxide-containing modifier (col. 9, lines 14-18).

Both references are analogous art because they are from the same field of endeavor concerning new viscosity modifiers for thermoplastic resin compositions.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust weight average molecular weight and the

weight ratio of unit (a) and (b) in the polymeric epoxide-containing viscosity modifier as taught by Laugnher in Saito's thermoplastic polyester resin composition because when an olefinic epoxide-containing modifier having such properties is present in the composition, substantially more favorable values for gloss and weldline and impact strength are achieved without loss of processibility (US'154, col. 22, lines 24-28), and thus to arrive at the subject matter of instant claim 2.

9. Claims 2-7 are rejected under 35 U.S.C. §103(a) as being unpatentable over Deyrup et al. (U. S. Patent 4,912,167) in view of Laughner (U. S. Patent 5,369,154).

Deyrup discloses a blow moldable composition of polyester, an epoxide polymer and a source of catalytic cations (abstract).

With regard to the limitations of claims 2 and 5, Deyrup discloses that the compositions are melt blends or mixtures consisting essentially of:

(a) 70-90 parts of weight of a semicrystalline polyester;

(b) 10-30 parts by weight of a copolymer containing epoxide groups; and

(c) 0.01 to 3.0 parts by weight of a source of catalytic cations selected from the group consisting of metal salts of hydrocarbon mono-, di-, or poly-carboxylic acids and metal salts of organic polymers containing carboxyl groups (col. 1, line 61 through col. 2, line 5).

Deyrup discloses that the epoxide group-containing polymers may also be derived from one or more monomers of classes (1) and (3) of which **methyl methacrylate/butyl acrylate/glycidyl methacrylate polymers** are representative.

These polymers may also contain units derived from monomers of class (4), illustrative of which is **methyl methacrylate/vinyl acetate/glycidyl methacrylate terpolymer**.

Deyrup does not disclose the weight ratio of unit (a) and (b) in the viscosity modifier and its weight average molecular weight.

Laughner discloses that the molecular weight of the polymeric epoxide-containing modifier is preferably between about 30,000 and about 200,000, which is mainly within the claimed range (col. 9, lines 41-44). Copolymers of about 1-25% by weight of glycidyl methacrylate and about 40% of vinyl acetate or butyl acrylate are particularly suitable for use as the polymeric epoxide-containing modifier (col. 9, lines 14-18).

Both references are analogous art because they are from the same field of endeavor concerning new viscosity modifiers for thermoplastic resin compositions.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust weight average molecular weight and the weight ratio of unit (a) and (b) in the polymeric epoxide-containing viscosity modifier as taught by Laugnher in Deyrup's thermoplastic polyester resin composition because when an olefinic epoxide-containing modifier having such properties is present in the composition, substantially more favorable values for gloss and weldline and impact strength are achieved without loss of processibility (US'154, col. 22, lines 24-28), and thus to arrive at the subject matter of instant claim 2.

With regard to the limitations of claims 3 and 4, Deyrup discloses that the ingredients used to make the compositions are dispersed uniformly and it has been

found that melt blending the ingredients, by using such equipment as a melt extruder (e.g. single screw extruders or preferably twin screw extruders) in a separate step prior to blow molding is desirable. The blended product is pelletized (i.e., the extruded strand is quenched and cut), dried and used for subsequent blow molding purposes using an extrusion blow molding machine (e.g., made by Richelieu Inc., Hayssen Inc., etc.) and fabricated into hollow articles such as containers. The previously postulated reactions involving the epoxide groups are apparently completed during the melt blending operation as evidenced by the large increases observed in melt viscosity and melt strength for the resulting melt blend (col. 4, lines 36-52).

With regard to the limitations of claim 6, Deyrup discloses that the polyester resins useful as component (a) are well known in the art. The polyester resins are usually prepared by melt condensation of one or more **dicarboxylic acids** with one or more **glycols**. Usually the glycol is employed in a stoichiometric excess relative to the diacid (col. 2, lines 15-21).

With regard to the limitations of claim 7, Deyrup discloses that poly(ethylene terephthalate) and poly(butylene terephthalate) are preferred with the latter being especially preferred. Blends of two or more polyesters may also be used with blends of poly(ethylene terephthalate) and poly(butylene terephthalate) being preferred (col. 2, lines 40-45).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL M. BERNSHTEYN whose telephone number is (571)272-2411. The examiner can normally be reached on M-Th 8-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner, Art Unit 1796

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